Claims

What is claimed is:

1. A group of synthetic antimicrobial peptides having the amino acid sequences listed in the Sequence Listing.

2. The synthetic antimicrobial peptides of claim 1, wherein the peptides comprise their functional analogs derived from substitution, cyclization, replacement of L-amino acid by D-amino acid, deletion or addition of an amino acid.

3. The synthetic antimicrobial peptides of claim 1 or 2, wherein the peptides comprise the following core structure:
(A1-A2-A3-A4)(A1′-A2′-A3′-A4′) or
(A1-A2-A3-A4)(A1′-A2′-A3′-A4′)(A1"-A2"-A3"-A4").

4. The synthetic antimicrobial peptides of claim 3, wherein A1, A1′ and A1" each is one selected from the group consisting of Lys and Arg.

5. The synthetic antimicrobial peptides of claim 3, wherein A2, A2′ and A2" each is one selected from the group consisting of Gly, Ala, Val, Leu, Ile and Phe.

6. The synthetic antimicrobial peptides of claim 3, wherein A3, A3′ and A3" each is one selected from the group consisting of Gly, Ala, Val, Leu, Ile and Phe.

7. The synthetic antimicrobial peptides of claim 3, wherein A4, A4′ and A4" each is one selected from the group consisting of Lys and Arg.

8. The synthetic antimicrobial peptides of claim 3, wherein the N-terminal end of the core structure (A1-A2-A3-A4) is linked with a sequence having 11 amino acids.

9. The synthetic antimicrobial peptides of claim 8, wherein each of the amino acids 1, 3, 6 and 7 of the sequence is one selected from the group consisting of Lys and Arg.

10. The synthetic antimicrobial peptides of claim 8, wherein the amino acid 2 of the sequence is one selected from the group consisting of Trp and Phe.

11. The synthetic antimicrobial peptides of claim 8, wherein each of the amino acids 4, 5, 8, 9, 10 and 11 of the sequence is one selected from the group consisting of Leu, Ile, Ala, Val and Gly.

12. A method for producing the synthetic antimicrobial peptides of claim 1 by

solid-phase chemical synthesis.

13. A method for producing the synthetic antimicrobial peptides of claim 1, comprising the steps of cloning the genes encoding the peptides into a vector, transforming the vector into a host cell, and expressing the peptides.

14. The method of claim 13, wherein the vector is one selected from the group consisting of plasmid and virus.

15. The method of claim 13, wherein the host cell is a prokaryotic cell, including Escherichia coli and Bacillus subtilis.

16. The method of claim 13, wherein the host cell is a eukaryotic cell, including yeast cell, plant cell, insect cell and mammal cell.

17. Use of the synthetic antimicrobial peptides of claim 1 or 2 in the preparation of a drug for treating the infectious diseases induced by bacteria, fungi and/or viruses.

18. Use of the synthetic antimicrobial peptides of claim 1 or 2 in the preparation of an antitumor drug.